Class Requirements and Grading Policy
Experimental Chemistry II, CH 462 & CH 462H
Writing Intensive Course
Winter 2010

1. All four experiments and reports must be completed to receive a final grade in CH 462 or CH 462H. The final grade is based only on your grades for the four assigned experiments.

2. You will receive a letter grade for each of the four experiments. These grades are based on both the lab reports and your performance during the laboratory. The final course grade will be a weighted average of these four grades, plus some consideration of your other writing assignments:

   Expt 1 = 35%    Expt 2 = 20%    Expt 3 = 25%    Expt 4 = 20%

3. Your performance in the laboratory is evaluated by the following criteria:
   (i) Preparation at the start of the lab period. For example, read the experiment ahead of time, arrive ready to begin with specific questions about procedure if necessary.
   (ii) Experimental technique and participation
   (iii) Quality and completeness of data obtained and recorded.

4. Report grades will also reflect data quality, data analysis, discussion content, organization, writing style, and mechanics (grammar, punctuation, units, etc.). More information about the form and expectations in reports is given below.

5. Working in groups of 2-4 is a necessity given our lab time/resource constraints. Group work can also be an advantage in allowing for more complex experiments, and by providing opportunities for peer interaction and discussion. Students within a group will often share the same data set, however, each student is required to do their own data analyses (individual spreadsheets, figures, etc.) and write their own report. Of course, this means individual answers to questions as well. Photocopies or multiple printouts of shared raw data are acceptable, but everything else must be your own work.

6. There is a dramatic penalty for late reports - a deduction of one +/-grade level for each day late (a weekend counts as 1 day). In other words, the highest possible grade for a one day-late report is A-, after 2 days it’s B+, and etc… Reports are late after 1:15 PM on the due dates indicated in the schedule. Scheduled class time on the due date is meant for the new experiment, and is not a time to finish writing, printing, or assembling reports.

7. You will submit two reports for grading in Expt 1. The first report, based on three experimental sections only, will be graded and returned with verbal and written comments. A complete report is due after the experiment has been completed. The final grade for this experiment will include the grades on both reports.
Lab Reports

The ACS Style Guide, 2nd or 3rd ed. (American Chemical Society, Washington, DC, 1997 or 2006) should be your principal resource for the correct writing formats and style. Below are some specific requirements for this class, and some reminders about the ACS writing style. There is also a Chemistry Writing Guide (link on course web supplemental page).

1. Reports must be submitted as a hard copy to the instructor or TA.

2. Reports should start with a title page, containing only the experiment number and title, author and lab-partner(s), group number, and date.

3. No Introduction or Experimental sections should be written or submitted. Thus, you do not need to provide details on experimental procedures, unless they have been changed from those provided. If so, indicate these changes in the Results or Discussion section where appropriate. If you have questions, ask the instructor about what should or should not be included in reports.

4. The second page of your report should contain only an Abstract that states the problem, provides a short summary of specific findings, and gives the main conclusions. The abstract should be approximately 200 words long and written in the present tense. A general rule for abstracts is to be as specific as possible, avoiding general statements.

   It was found that large or small polymer chains can be made by different methods.  Worse
   
   \[ \text{M}_n \text{ for poly(ethylene) samples prepared by anionic and emulsion polymerization are determined by light scattering to be } 5.6 \times 10^5 \text{ and } 4.2 \times 10^3, \text{ respectively.} \text{ Better} \]

5. The Results and Discussion section should follow the abstract. The purpose is to provide the data obtained in a clear and logical sequence. Most of the figures and tables in your report will be included here (see below for additional info). The experiment handouts generally give directions to guide your analysis of the data obtained. This section should include a narrative text that describes and explains the information presented. Use this text to explain the purpose of all the figures, tables, and sample calculations presented, there shouldn’t be any “orphan” data included in your report. Place each figure or table close to its discussion either by electronically pasting it into the word processing document or by placing it on the following new page in the report. Make sure to include in this section the answers to the questions and provide any information requested in the “report guide” section of each experiment.

6. If you have lengthy sample calculations, they can be attached to the end of your lab report under the heading, “Supplemental information”. Sample calculations should be provided for complex calculations or where requested. Don’t spend a lot of time formatting equations on the word processing software (unless you enjoy this) – legible handwritten equations are fine.
7. A References section should include ACS-style citations to the literature cited in the report. See the ACS style guide especially for the proper format for citations. Cite the reference by number in the text as needed. Examples:


8. The duplicate (blue) pages from your notebook should be attached to the end of each report. Part of the grade will depend on the legibility, organization, accuracy, and completeness of notes taken during the lab periods.

Some important details on report style/content:

- The pages in your lab report should be consecutively numbered, beginning with the Abstract on p.2.
- Avoid the use of first or second person in reports.
  
  We/I refluxed the solution at 90 °C for an hour.  
  
  The solution refluxed at 90 °C for 1 h.

- Be careful with significant figures in tables, figures, and calculations. Some examples:

  \[
  \frac{90.0314 \text{ g}}{(1.31 \text{ g/cm}^3)} = 68.7 \text{ cm}^3 \quad \leftarrow\leftarrow \text{ 3 sig. figs. in result}
  
  90.031 \text{ g} + 1.3 \text{ g} = 91.3 \text{ g} \quad \leftarrow\leftarrow \text{ 1 decimal place in result}
  
  4.5 \times 10^{-4} \text{ Hz} \times \pi^2 = 4.4 \times 10^{-3} \text{ Hz} \quad \leftarrow\leftarrow \text{ 2 sig. figs. in result}
  \]

- Each discussion should contain some indication of sources of error in the experiment. If at all possible, this analysis should be quantitative, or at least semi-quantitative, to provide some insight into the significance of the error sources. Example:

  The desk vibrated a little, which made the curve noisy once in a while, but we could easily measure the peak really accurately.  
  
  Background noise, due mainly to external vibrations, was estimated to be 1 – 5 W/kg RMS. Since the peak height is 130 W/kg, this adds <5 % error to the peak integration.

- Figures and tables should always include a number and title, for example:

  Figure 1. Mass uptake vs. reduced pressure for Zeolite 5A.
  
  Table 2. Powder diffraction data obtained for Zeolite 5A.

- The labels “Chart” and “Graph” are not used in the ACS style.
- All figures and tables should be called out by number in your report, for example:

  A plateau was observed at reduced pressures greater than 0.1, as indicated in Table 1.
• Capitalize the words Table and Figure when they refer to a specific number.

In Table 1, the intrinsic viscosity is determined by extrapolation of ....

• Axes require labels that include both the variable name and units. Axes should use reasonable scales to clearly show the data and have labeled tic marks.
• Table columns headings should specify the units employed.
• Remember to display table entries with the appropriate number of significant figures; you can adjust the spreadsheet to give the appropriate format(s). Graph axes and/or labels do not need to show all significant figures, the numbers should be as short as possible for clarity.
• Don’t write decimals less than 1 without a leading 0. This holds true for text, tables, and figures.

  Bad:   The sample weighed .462 g.
  Good:   The sample weighed 0.462 g.

• Watch out for significant figures in text and tables! A temperature of 175.56 °C is pretty hard to believe. It’s probably 175 (1) °C.

• Be careful of words/phrases like “should have been”, “expected value”, and “reasonable”. These generally need to be replaced by something like “differ from previous reports by”, or similar, and are almost certainly going to need a citation.

  Bad:   The viscosity was not reasonable; it was much lower than expected.
  Good:   The viscosity obtained was significantly less than that obtained by xxx and xxx [1].

In the good example, [1] is a literature citation.

• Use the symbol font and enjoy life with a more diverse character set. Don’t write out the words Angstroms, degrees, microns, and etc. Use Å, °, µ, etc.
• Use accepted abbreviations. Don’t write out the unit names grams, meters, etc.

  Bad:   We obtained 7.6 grams before drying at 120 degrees Celsius.
  Good:   The product (7.6 g) was then dried at 120 °C.
University Policies:

Please note: "Students with documented disabilities who may need accommodations, who have any emergency medical information the instructor should know, or who need special arrangements in the event of evacuation, should make an appointment with the instructor as early as possible, no later that the first week of the term. In order to arrange alternative testing, the student should make the request at least one week in advance of the test. Students seeking accommodations should be registered with the Office of Services for Students with Disabilities."

Please note: The College of Science follows the university rules on civility and honesty. These can be found at http://oregonstate.edu/admin/stucon/.

Cheating or plagiarism by students is subject to the disciplinary process outlined in the Student Conduct Regulations. Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

* cheating- use or attempted use of unauthorized materials, information or study aids
* fabrication- falsification or invention of any information
* assisting- helping another commit an act of academic dishonesty
* tampering- altering or interfering with evaluation instruments and documents
* plagiarism- representing the words or ideas of another person as one's own

Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action.

“The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student's freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office.”